



# 1,4-DICHLOROBENZENE

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Agency for Toxic Substances and Disease Registry ToxFAQs

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This fact sheet answers the most frequently asked health questions (FAQs) about 1,4-dichlorobenzene. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It's important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

**HIGHLIGHTS:** Exposure to 1,4-dichlorobenzene happens mostly from breathing high levels in indoor air or workplace air. Extremely high exposures can cause dizziness, headaches, and liver problems. 1,4-Dichlorobenzene has been found in at least 281 of 1,467 National Priorities List sites identified by the Environmental Protection Agency (EPA).

## What is 1,4-dichlorobenzene?

(Pronounced 1,4-dī' klôr' ō bēn' zēn')

1,4-Dichlorobenzene is a chemical used to control moths, molds, and mildew, and to deodorize restrooms and waste containers. It is also called para-DCB or p-DCB. Other names include Paramoth, Para crystals, and Paracide reflecting its widespread use to kill moths.

At room temperature, p-DCB is a white solid with a strong, pungent odor. When exposed to air, it slowly changes from a solid to a vapor. It is the vapor that acts as a deodorizer or insect killer. Most people recognize the odor as the smell of mothballs, and can smell p-DCB in the air at very low levels. Most p-DCB in our environment comes from its use in moth repellent products and in toilet deodorizer blocks.

## What happens to 1,4-dichlorobenzene when it enters the environment?

- ☐ In air, it breaks down to harmless products in about a month.
- ☐ It does not dissolve easily in water.
- ☐ It is not easily broken down by soil organisms.

- ☐ It evaporates easily from water and soil, so most is found in the air.
- ☐ It is taken up and retained by plants and fish.

## How might I be exposed to 1,4-dichlorobenzene?

- ☐ Breathing indoor air in public restrooms and homes that use p-DCB as a deodorizer.
- ☐ Breathing air around some mothballs (check the label).
- ☐ Breathing workplace air where p-DCB is manufactured.
- ☐ Drinking contaminated water around hazardous waste sites.
- ☐ Eating foods such as pork, chicken, and eggs that are contaminated with p-DCB from its use as an odor control product in animal stalls.
- ☐ Eating fish from contaminated waters.

## How can 1,4-dichlorobenzene affect my health?

There is no evidence that moderate use of common household products that contain p-DCB will result in harmful effects to your health. Harmful effects, however, may occur from high exposures. Very high usage of p-DCB products in the home can result in dizziness, headaches, and liver problems. Some of the patients who developed these symptoms had been using the products for months or even years after

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they first began to feel ill.

Workers breathing high levels of p-DCB (1,000 times more than levels in deodorized rooms) have reported painful irritation of the nose and eyes. There are cases of people who have eaten p-DCB products regularly for months to years because of its sweet taste. These people had skin blotches and lower numbers of red blood cells.

### **How likely is 1,4-dichlorobenzene to cause cancer?**

The Department of Health and Human Services (DHHS) has determined that p-DCB may reasonably be anticipated to be a carcinogen. There is no direct evidence that p-DCB can cause cancer in humans. However, animals given very high levels in water developed liver and kidney tumors.

### **How can 1,4-dichlorobenzene affect children?**

Children are exposed to p-DCB in many of the same ways that adults are. Children may be at higher risk, due to accidental exposures such as swallowing p-DCB used in the home in mothballs or toilet bowl deodorant blocks. There is very little information on how children react to p-DCB exposure, but children would probably show the same effects as adults.

No studies in people or animals show that p-DCB crosses the placenta or can be found in fetal tissues. Based on other similar chemicals, it is possible that this could occur. There is no credible evidence that p-DCB causes birth defects. One study found dichlorobenzenes in breast milk, but p-DCB has not been specifically measured.

### **How can families reduce the risk of exposure to 1,4-dichlorobenzene?**

You should not let children play with or drink toilet bowl water because it may contain p-DCB. Do not let children rub mothballs or cleaners containing p-DCB on their skin. Pesti-

cides, bathroom deodorizers, and mothballs containing p-DCB should be stored out of reach of young children. Always store household chemicals in their original containers. Never store them in containers children would find attractive to eat or drink from, such as old soda bottles.

### **Is there a medical test to show whether I've been exposed to 1,4-dichlorobenzene?**

Tests are available to measure your exposure to p-DCB. The most common test measures a breakdown product of p-DCB called 2,5-dichlorophenol in urine and blood. If there is 2,5-dichlorophenol in the urine, it indicates that the person was exposed to p-DCB within the previous day or two. The test that measures p-DCB in your blood is less common.

### **Has the federal government made recommendations to protect human health?**

The EPA has set a maximum contaminant level of 75 micrograms of p-DCB per liter of drinking water (75 µg/L).

p-DCB is also an EPA-registered pesticide. Manufacturers must provide certain information to EPA for it to be used as a pesticide.

The Occupational Safety and Health Administration (OSHA) has set a maximum level of 75 parts of p-DCB per million parts air in the workplace (75 ppm) for an 8-hour day, 40-hour workweek.

### **Source of Information**

Agency for Toxic Substances and Disease Registry (ATSDR). 1998. Toxicological profile for 1,4-dichlorobenzene. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Animal testing is sometimes necessary to find out how toxic substances might harm people and how to treat people who have been exposed. Laws today protect the welfare of research animals and scientists must follow strict guidelines.

**Where can I get more information?** For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop E-29, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 404-639-6359. ToxFAQs Internet address via WWW is <http://www.atsdr.cdc.gov/toxfaq.html> ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

